

Radio Definitions and Acronyms*	
700 MHz	Frequency band allocated by the Federal Communications Commission as additional 24 MHz of public safety spectrum in the 764-806 MHz band, which can provide for immediate capacity growth in areas not currently blocked by incumbent TV channels for public safety communication access. This band is capable of carrying both voice and data transmission.
Analog	Whenever a person speaks, sound is projected in the form of a sound wave. These waves move at a certain frequency that determines the pitch of the sound. An analog radio network transmits the actual wave of a person's voice over the air by modulating it onto a radio frequency carrier. An analog network operates differently from a digital network, which converts the vocal sound wave into a digital bit stream of ones and zeros. This information is then sent over the air, and eventually converted back into an analog wave to be heard.
Antenna	Any structure or device used to collect or radiate electromagnetic waves.
APCO	This stands for The Association of Public Safety Communications Officials. This agency is composed of many different public safety employees and representatives from around the world. APCO was one of the lead agencies in the development of the Project 25 Standard on which our new radio system is based.
Backbone	A term used to describe permanently installed major communications equipment such as repeaters, microwave, fiber optics, and base stations.
Backhaul	In Land Mobile Radio (LMR) systems, backhaul (or Transport Network) connects all the tower sites to one another using microwave or fiber-optic technology.
Backward Compatibility	This term refers to the capability of a piece of equipment (i.e. software program, hardware component) to be compatible with its predecessor in all forms. For instance, Microsoft Word 2007 is backward compatible since it can create documents that will run in Microsoft Word 97.
Band	In communications, the spectrum between two defined limited frequencies. For example, the Ultra High Frequency (UHF) band is located from 300 MHz to 3,000 MHz in the radio frequency spectrum.
Base Station	This term refers to a stationary radio connected to an antenna. The antenna is located where it can transmit into and receive from a geographic area where mobile and portable radios are being operated.
Call Congestion	The ratio of calls lost due to a lack of system resources to the total number of calls over a long interval of time.
Call Delay	The delay experienced when a call arriving at an automatic switching device finds no idle channel or facility available to process the call immediately.
Call Groups	A digital format to separate different agencies from hearing each other during conversations on the air. Similar to Channel Guard.
Change Order	A written order, which is issued and signed by the Owner to the Contractor authorizing an addition, deletion or revision in the goods or services within the general scope of contract documents.
Channel	A single unidirectional or bidirectional path for transmitting or receiving, or both, of electrical or electromagnetic signals.
Channelization	The use of a single wideband, i.e., high-capacity, facility to create many relatively narrowband, i.e., lower capacity channels by subdividing the wideband facility.
CJIN	Criminal Justice Information Network
Code-Division Multiple Access (CDMA)	A coding scheme, used as a modulation technique, in which multiple channels are independently coded for transmission over a single wideband channel. Note 1: In some communication systems, CDMA is used as an access method that permits carriers from different stations to use the same transmission equipment by using a wider bandwidth than the individual carriers. On reception, each carrier can be distinguished from the others by means of a specific modulation code, thereby allowing for the reception of signals that were originally overlapping in frequency and time. Thus, several transmissions can occur simultaneously within the same bandwidth, with the mutual interference reduced by the degree of orthogonality of the unique codes used in each transmission. Note 2: CDMA permits a more uniform distribution of energy in the emitted bandwidth.
Common Air Interface (CAI)	This refers to the protocol by which handheld and mobile radios communicate with the radio system infrastructure. In modern radio systems this is typically a proprietary format, however the CAI, defined by the Project 25 Standard, makes this an open protocol. This allows different manufacturers' portable and mobile radios to work together on a single radio system.
* Derived from APCO, the National Criminal Justice Reference Service, the National Governor's Association and other sources	

Communications system	A collection of individual communications networks, transmission systems, relay stations, tributary stations, and data terminal equipment usually capable of interconnection and interoperability to form an integrated whole. The components of a communications system serve a common purpose, are technically compatible, use common procedures, respond to controls, and operate in unison.
Console	A console is used by a dispatch operator to communicate with users in the field, to track radio activity, and to coordinate the efforts of various public safety agencies. A typical dispatch position consists of various types of equipment, which along with the radio console includes several different tracking and communication systems, usually running on anywhere from one to five computers. Dispatchers usually operate in a public safety facility, with consoles set up in their individual work areas.
Controller	A computer used to assign call group validity, emergency grouping, call access, and audio pathways, usually used in trunking applications.
Conventional	A conventional radio network allocates specific frequencies to specific groups of radio users permanently. If nobody in a particular group is transmitting on their assigned frequency, then that channel remains open. This is in contrast to a trunking network which assigns frequencies to users only when they are needed, which can be more efficient. The Lewis & Clark County network will be a trunking network.
Coverage/Coverage Area	A radio network's coverage area refers to the entire geographic area that gets a strong enough signal from the network for a wireless radio in the field to transmit and receive. Once a signal from a network degrades so badly that it is essentially useless, and all transmissions are bad or impossible, then that area is considered to be out of the coverage area. The coverage area is often called the "footprint" of a network.
Data	Representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by human or by automatic means. Any representations such as characters or analog quantities to which meaning is or might be assigned.
Dead Spots (or zones)	The area, zone, or volume of space that is within the expected range of a radio signal, but in which the signal is not detectable and therefore cannot be received. Common causes of dead spots include depressions in the terrain and physical structures.
De-Key	Turn the transmitter off (release the Push-to-Talk switch).
DHS	Department of Homeland Security
Digital	The term "digital" refers to the method of expressing information in one of two different electronic states, which are usually designated as ones or zeros. These ones and zeros form a pattern that can be translated into all kinds of information. Relaying digital information through an electrical system is done by transmitting electronic pulses with one of two distinct electrical charges. These pulses are usually referred to as either "1" or "0", with the "1" pulse usually having a higher voltage, or charge, than the "0" pulse. Electronic equipment such as computers can interpret the information by: a) receiving a set of electronic pulses, b) sensing the different voltages of the pulses, therefore determining whether each pulse is a "1" or a "0", and c) combining many of these ones and zeros to form instructions that tell the computer what to do.
Digital Signal	A signal in which discrete steps are used to represent information.
EIA	Electronics Industry Association
EMS	Emergency Medical Services
Encryption	Digital transmissions can use encryption to secure information that is being transmitted. The reason this security technique is so effective is because the encrypted transmissions can only be deciphered by a radio with the proper decryption key. This key consists of a software application that is programmed into the authorized radios. With the new network, digital encryption can be incorporated as part of the system as needed.
ERP	Effective Radiated Power is a measure of the power output of an antenna, used by stations to predict signal range, and by regulatory bureaus to limit a station's emissions.
FCC	The Federal Communications Commission (FCC) is an independent United States government agency, directly responsible to Congress. The FCC was established by the Communications Act of 1934 and is charged with regulating interstate and international communications by radio, television, wire, satellite and cable. The FCC's jurisdiction covers the 50 states, the District of Columbia, and U.S. possessions. This governmental agency decides how frequencies are to be used, as well as who can transmit on them. The FCC sets aside specific amounts of frequencies for public safety transmissions, commercial wireless carriers, television broadcasts, etc. Traditionally, the FCC grants blocks of frequencies to public safety agencies, while commercial carriers must buy a license to transmit from the FCC.

FEMA	Federal Emergency Management Administration
Frequency	All radio networks broadcast their transmissions through antennas on a certain frequency. The number of the frequency refers to the number of times that an electromagnetic wave repeats in the span of one second. With sophisticated electronic equipment, these waves can be engineered to carry large amounts of information over great distances. For a periodic function, the number of cycles or events per unit time.
Frequency Bands	Frequency bands where land mobile radio systems operate in the United States including the following: High HF 25-29.99 MHz Low VHF 30-50 MHz High VHF 150-174 MHz Low UHF 450-470 MHz UHF TV Sharing 470-512 MHz 700 MHz 764-776/ 794-806 MHz 800 MHz 806-869 MHz
Frequency-Division Multiple Access (FDMA)	1. The use of frequency division to provide multiple and simultaneous transmissions to a single transponder. [7] 2. A channel access method in which different conversations are separated onto different frequencies. FDMA is employed in narrowest bandwidth, multiple-licensed channel operation.
Gateway	1. An interface that provides the necessary protocol translation between disparate networks. 2. A type of network relay that attaches two networks to build a larger network. A translator of message formats and addresses, gateways typically make connections through a modem to other mail systems or services.
GHz	Gigahertz
Handhelds	Also called portable, this term refers to a radio that is completely portable.
Handoff	In mobile systems, the process of transferring a call in progress from one site transmitter and receiver and frequency pair to another site transmitter and receiver using a different frequency pair without interruption of the call.
Hybrid	A functional unit in which two or more different technologies are combined to satisfy a given requirement. Note: An example of a hybrid includes a radio that has both analog and digital capability.
ICTAP	The Interoperable Communications Technical Assistance Program contracted through the Office for Domestic Preparedness, US Department of Homeland Security, to provide assistance in interoperability planning.
Infrastructure	When relating to radio communications systems, the hardware and software needed to complete and maintain the system.
Intelligent Site Repeater	An Intelligent Site Repeater is a radio site which utilizes a device called a site controller. This controller can perform all call processing and channel assignment tasks that are required to operate the site's base stations.
Interference	In general, extraneous energy, from natural or humanmade sources, that impedes the reception of desired signals.
Interoperability	The ability of public safety agencies – law enforcement, firefighters, EMS, emergency management, public utilities, transportation and others – to communicate when necessary with staff from other responding agencies, and to exchange voice and/or data communications on demand and in real-time. In general, it refers to the capability of separate and independent entities to work together seamlessly.
Interoperability Continuum	SAFECOM's Interoperability Continuum is designed to help the public safety community and local, tribal, state, and federal policy makers address critical elements for success as they plan and implement interoperability solutions. These elements include frequency of use of interoperable communications, governance, standard operating procedures, technology, training/exercises, and frequency of use (usage) of these solutions.
Internet Protocol (IP)	The method by which data travels from one computer to another over the Internet. Each computer has an IP address that uniquely identifies it. IP-based communication systems can transform voice signals into digital information that then can be sent over data networks.
Interstate Compact Agreement	A written contract between States to cooperate on a policy issue or program that extends across and through State boundaries.
Investment Justifications (IJ)	The method by which the Dept. of Homeland Security and other granting agencies require states, territories and urban areas to describe how specific funding investments and implementation approaches will impact or enhance homeland security preparedness. IN the IJ, the applicant also has to describe the applicant's ability to successfully execute and implement the Investment.

Joint Powers Act	A written contractual agreement entered into between two or more public agencies subject to any constitutional or legislative restriction imposed upon any of the contracting public agencies.
Key	The parameter defining an encryption code or method.
Kilohertz (Khz)	A unit of frequency equal to 1,000 hertz. Used especially as a radio-frequency unit.
Loading	The FCC awards licenses for frequency usage based on an expectation that there will be a minimum number of users on each channel by a certain time. This amount of users per channel is referred to as loading. For instance, if a wireless network builder purchased licensing for 20 channels from the FCC, then the FCC might stipulate that there must be a certain amount of loading, or users per channel, by a certain time. If the network provider does not meet the loading requirements, their license would be returned to the FCC. The FCC does this to provide incentive for carriers to make good use of their purchased frequencies. In the case of a public safety network, the FCC grants channels to government agencies (as opposed to selling them), but still requires a certain amount of loading. When all the channels that have been provided from the FCC cannot handle any additional radio users, the system is referred to as fully loaded.
Lost Call	A call that has not been completed for any reason other than cases where the call receiver (termination) is busy.
Master Site / Master Site Switch	The Master site is a system that serves as a core network center for a trunked radio system. The Master site includes controllers, servers, network routing devices, management terminals and console equipment to support a wide-area 700 MHz Radio System. In addition, a Master site is a trunking controller that provides automatic switching of a mobile or portable radio between tower sites. Much like a cellular switch, it enables a user in one coverage area to communicate with a user in another area served by a different tower site or system of towers.
MDT	An MDT, or Mobile Data Terminal, 1. is a vehicle-mounted keyboard and display that is wirelessly linked to a radio network. An MDT can allow an operator such as a police officer or firefighter to access information from the network, such as missing persons' files or driving records. MDT's are primarily used to view information from the network and do not have the capability of operating applications independently from the network.
Megahertz (Mhz)	A unit of frequency denoting one million Hz. Used especially as a radio-frequency unit.
Memorandum of Agreement (MOA)	An agreement of cooperation between organizations defining the roles and responsibilities of each organization in relation to the other or others with respect to an issue over which the organizations have concurrent jurisdiction.
Memorandum of Understanding (MOU)	An agreement of cooperation between organizations defining the roles and responsibilities of each organization in relation to the other or others with respect to an issue over which the organizations have concurrent jurisdiction.
Microwave	A point-to-point radio system used to transport voice and data traffic from various locations.
Mobile	In radio systems, the term mobile is usually used when referring to a vehicle-mounted radio unit. This is different from a portable radio, which refers to a handheld radio.
Mobile Data	The ability to transmit non-audible information to field units, such as driving records or missing person's files.
Mobile Data Terminal	A Mobile Data Terminal, or MDT, is a vehicle-mounted keyboard and display that is wirelessly linked to a radio network. An MDT can allow an operator such as a police officer or firefighter to access information from the network, such as missing persons' files or driving records. MDT's are primarily used to view information from the network and do not have the capability of operating applications independently from the network.
Multicast	Simultaneous transmission of radio signals on different frequencies.
Multimode	Protocol to transmit wireless audio signals by means of multicast, simulcast, trunking, or a combination of the three.
Mutual Aid Channel	A national or regional channel that has been set aside for use only in mutual aid interoperability situations, usually with restrictions and guidelines governing usage.
Narrowband	The Federal Communications Commission's rule-making proceeding to reduce wideband channel assignments from 25 kHz, then to 12.5 kHz and finally to 6.25 kHz bandwidths.
NCIC	National Crime Information Center
NEPA	Stands for the National Environmental Protection Act and refers to an environmental review application process that assesses the environmental effects and social, cultural, and economic , and natural resource impacts of proposed actions, such as the development of a communications site at a particular location.

NIMS	The National Incident Management System created by the US Department of Homeland Security in order to provide a consistent nation-wide approach for all levels of government to work together effectively and efficiently to prepare for, prevent, respond to, and recover from domestic incidents, regardless of cause, size, or complexity.
NPSAC	National Public Safety Advisory Committee
NPSTC	National Public Safety Telecommunications Council
NTIA	National Telecommunications and Information Administration: The Executive Branch agency that serves as the President's principal advisor on telecommunications and information policies and is responsible for managing the Federal Government's use of the radio spectrum.
Packet	A sequence of binary digits, including data and control signals, that is transmitted and switched as a composite whole. The data, control signals and possibly error control information, are arranged in a specific format.
Packet Switching	The process of routing and transferring data by means of addressed packets so that a channel is occupied during the transmission of the packet only, and upon completion of the transmission the channel is made available for the transfer of other traffic.
Patch	A control center subsystem that permits a mobile or portable radio on one channel to communicate with one or more radios on a different channel through the control center console.
Pager	A communications device in which the intended receiver is alerted to receive a message or return a call.
Patch	A control center subsystem that permits a mobile or portable radio on one channel to communicate with one or more radios on a different channel through the control center console.
PDA	Personal Digital Assistant
Portable	In radio systems, the term portable usually refers to a handheld radio. This is different from a mobile radio, which would refer to a radio mounted inside a vehicle.
Project 25 (P25) Standards	Project 25 is a suite of guidelines developed by radio system users for the purpose of standardizing the method of designing radio telecommunications networks for public safety agencies. Several organizations, such as the Association of Public Safety Communications Officials (APCO), and federal agencies as well as radio manufacturers participated in designing this important standard. Project 25 ensures that all systems following the standard will meet its five main objectives: to make efficient use of the limited number of available public safety frequencies; to permit interoperability among other Project 25-compliant agencies; to ensure backward compatibility of the network; to create smooth system migration via upgrades, additions, etc.; and to provide the capability for scalable trunked and conventional networks. The standards require equipment to be backward compatible with legacy analog equipment (i.e., operate on both digital and analog systems) and to be non-proprietary. Ultimately, the standard ensures that all the defined services are accessible to any subscriber unit or system built to the Project 25 specifications.
Proprietary Software	Signaling protocol or software that is unique to a manufacturer and incompatible with other manufactured systems.
Protocol	A set of unique rules specifying a sequence of actions necessary to perform a communications function.
PSIC	Public Safety Interoperable Communications grant funding to assist public safety agencies in the acquisition of, deployment of, or training for the use of interoperable communications systems.
PSWAC	Public Safety Wireless Advisory Committee
PSWN	Public Safety Wireless Network
PTT (Push to Talk)	This term refers to the button on a radio that a user pushes to transmit. When somebody wants to talk over the air, they depress the PTT on their portable radio, mobile radio, or dispatch console, and if there is an available frequency, they will be able to speak over the network. When a user presses the PTT, which is often referred to as "keying" the radio.
PTT (Push to Think)	This term refers to the habit of some radio users who push the button on a radio before they've decided what they want to say, tying up a channel while they figure it out. Don't do this.
Public Officials	Public officials represent or work for government entities often in executive roles. Public officials include elected and appointed officials at every level of government working to serve the public in a variety of roles, such as council members, police chiefs, fire chiefs, sheriffs, governors, chief information officers, mayors, and chief communications officers.

Public Safety Service Providers	Persons who perform emergency first response missions to protect and preserve life, property, and natural resources and to serve the public welfare through Federal, State, or local governments as prescribed by law. Public safety service providers also include nongovernmental organizations who perform public safety functions on behalf of the government. For example, a number of local governments contract with private groups for emergency medical services.
Public Safety Support Providers	Includes those whose primary mission might not fall within the classic public safety definition, but whose mission may provide vital support to the general public and/or the public safety official. Law enforcement, fire, and EMS would fit the first category, while transportation or public utility workers would fit the second.
Queue	When a radio user tries to make a call, and there are no available frequencies to transmit on, that user's call gets placed in a queue. For the most part, the first user that gets placed into a queue will get to transmit as soon as a frequency becomes available, and any subsequent users in the queue will transmit when their turn arrives.
R-56	Accepted criteria for proper grounding and installation techniques for repeater and base station applications.
Radio	This term takes on multiple meanings when applied to a communications system. When the term "radio" is used, it can refer to any of the following: a portable device used to transmit audio, a base station at a transmit site that contains electronic equipment, electromagnetic waves in the air which carry a network's information, or any device used to receive and/or transmit information across a medium.
Radio Cache	A portable or permanent storage facility for radios.
Radio Channel	An assigned band of frequencies sufficient for radio communication. The bandwidth of a radio channel depends upon the type of transmission and the frequency tolerance. A channel is usually assigned for a specified radio service to be provided by a specified transmitter.
Radio Communication	Telecommunication by means of radio waves.
Radio Equipment	As defined in Federal Information Management Regulations, any equipment or interconnected system or subsystem of equipment (both transmission and reception) that is used to communicate over a distance by modulating and radiating electromagnetic waves in space without artificial guide. This does not include such items as microwave, satellite, or cellular telephone equipment.
Radio Frequency (RF)	Any frequency within the electromagnetic spectrum normally associated with radio wave propagation.
Refarming	An FCC effort to develop a strategy for using private land mobile radio (PLMR) spectrum allocations more effectively so as to meet future communications requirements. This is to be accomplished primarily by dividing channel bandwidths (i.e. narrowbanding).
Repeater	A repeater is a piece of equipment that acts as a transmitter and a receiver. In a radio communications system, repeaters are used to extend the coverage of a wireless transmission. The repeater accomplishes this by first receiving a signal that has been transmitted from some other location, then amplifying and re-transmitting that signal from an antenna, thus giving the original transmission a boost.
RF	Radio Frequency
RFP	Request for Proposals
ROI	Return on Investment
SAFECOM	The Wireless Public SAFETy Interoperable COMmunications Program is the umbrella organization managed by the US Department of Homeland Security with coordination/oversight responsibility for federal initiatives and projects pertaining to public safety communications and interoperability at the local, state, federal and tribal levels.
SCIP	Statewide Communications Interoperability Plan
SIGB	The purpose of Montana's Statewide Interoperability Governing Board (SIGB) is to plan, develop and promote public safety interoperable communications in the state. Interoperable communications include broadband and land mobile radio (LMR).
Signal	The detectable transmitted energy which carries information from a transmitter to a receiver.
Simulcast	A radio network that is simulcast transmits information from each of its transmission sites simultaneously. This means that when a radio user transmits from his/her radio, that transmission is rebroadcast from every tower or antenna that is part of the simulcast system. Because of this technique, any radio can pick up any transmission, regardless of its location.

Site	Also called transmit site, cell site, radio site, or antenna site. Any radio network transmits and receives its signals through antennas that are placed strategically in different locations throughout their desired coverage area. These places are called sites. Usually the antennas at these sites are mounted high above ground on towers or on the sides of buildings.
Spectral Efficiency	Project 25 enables 12.5 kHz systems migration to 6.25 kHz or equivalent spectral efficiency performance.
Spectrum	The usable radio frequencies in the electromagnetic distribution. Specific frequencies have been allocated to the public safety community. They include: High HF 25-29.99 MHz Low VHF 30-50 MHz High VHF 150-174 MHz Low UHF 450-470 MHz UHF TV Sharing 470-512 MHz 700 MHz 764-776/794-806 MHz 800 MHz 806-869 MHz
Squelch	a circuit function that acts to suppress the audio (or video) output of a receiver in the absence of a sufficiently strong desired input signal.
Standards-Based Shared Communications System	A non-proprietary communications system in which interoperability is provided as a byproduct of system design, creating an optimal technology solution.
State Level Radio Systems	Consists of a statewide digital microwave system, which is utilized by the State Agencies as a transport mechanism for the control of the state's two-way radio systems. In addition to the microwave system are the State Agencies two-way radio systems. The statewide digital microwave system is intended to link all of the state radio systems, disparate regional radio systems and other radio systems together.
Subscriber Unit	A mobile or portable radio unit used in a radio system.
System	Any organized assembly of resources and procedures united and regulated by interaction or interdependence to accomplish a set of specific functions.
Talkgroup	A talkgroup is a group of radio users that are linked to each other through the radio system. For instance, if any member of a talkgroup initiates a call, any member of that group will hear that transmission. The Lewis & Clark County network will incorporate many different talkgroups, and the users in these groups will be able to interact with the members of their own group as well as monitor other talkgroups throughout the network.
TIA	Telecommunications Industry Association
Time Division Multiple Access (TDMA)	1. A communications technique that uses a common channel (multipoint or broadcast) for communications among multiple users by allocating unique time slots to different users. Note: TDMA is used extensively in satellite systems, local area networks, physical security systems, and combat-net radio systems. 2. A channel access method in which different conversations are separated into different time slots
Traffic	This term refers to the number of transmissions being made on the network at any given moment. Although most networks are designed to function even when very busy, an excess of traffic on a network may cause some radios to be placed in a queue when trying to transmit. Comprehensive traffic projections have been taken into account while designing the new Lewis & Clark County network, and since this network provides radio coverage to public safety agencies, the standards have been raised much higher than that of commercial wireless provider.
Trunked Radio System	Trunking is the efficient use of frequency spectrum because a trunked system integrates multiple channel pairs into a single system. When a user wants to transmit a message, the system automatically selects a currently unused channel pair and assigns it to the user, decreasing the probability of having to wait for a free channel. Many subscribers can use fewer radio frequencies than a conventional radio system to hold many simultaneous conversations.
Trunking	This term refers to a type of communications system that draws from a pool of available frequencies, and assigns them only when they are needed. For example, in the trunked network, when a radio user wishes to talk over the air, they push their transmit button and the system dedicates a frequency to broadcast that user's transmission. After the user lets go of the transmit button, the system can reassign that same frequency to a completely different radio. Trunking is different from a conventional radio network, which assigns one dedicated frequency to a group of radios indefinitely. In a conventional system, if nobody in a particular group is transmitting, their assigned frequency sits unused and is essentially wasted. Trunking can be more efficient, since any available frequency can be used whenever it is needed.

UHF – Ultra High Frequency	Stands for "Ultra High Frequency Band" and signifies the band of radio frequencies from 300 to 3,000 MHz. The specific radio frequency spectrum that Idaho predominately utilizes within the 450-460 MHz range.
User	A person, organization, or other entity (including a computer or computer system), that employs the services provided by a telecommunication system, or by an information processing system, for transfer of information. Note: A user functions as a source of final destination of user information, or both.
VHF – Very High Frequency	Stands for "Very High Frequency" and signifies a band of radio frequencies falling between 30 and 300 MHz. The specific radio frequency spectrum that Idaho predominately utilizes within the 130-174 MHz range.
Vocoder	This piece of equipment transforms the sound of a person's voice into a stream of digital information. It also reverses the process by converting digital information back to voice. The vocoder is vital to the operation of a digital network, since without it, no audio transmissions could be sent or understood.